

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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USA Patent Application
Reinhold Berberich
OVERVOLTAGE PROTECTION DEVICE

Priority: German Patent Applications
100 19 885.6 filed April 20, 2000; and
100 41 290.4 filed August 22, 2000

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R :

PRELIMINARY AMENDMENT

Please amend the English translation simultaneously being filed
herewith as follows:

IN THE ABSTRACT

PAGE 14

Line 5, change "The ... to an" to --An--

Last Line on page, delete "(Figure 1)"

IN THE SPECIFICATION

Page 1, Line 1, before title, delete paragraph "Description"

Page 1, before Line 5, insert paragraph heading:

--FIELD AND BACKGROUND OF THE INVENTION--

Page 1, before Line 21, insert paragraph heading:

--SUMMARY OF THE INVENTION--

Page 4, before Line 35, insert paragraph heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--

Page 5, before Line 13, insert paragraph heading:

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--

IN THE CLAIMS

(APPLICATION PAGES 10-13)

Before claim 1, change "Patent claims" to --I CLAIM:--

Please cancel claims 1-21 without prejudice or disclaimer of the subject matter therein and substitute new claims 22-43 therefor:

22. (new) An overvoltage protection device for an electronic apparatus having a plug-in device which has at least one plug-in element and is mountable on a housing of the electronic apparatus, **wherein** a protection board (9) having a

spark gap to dissipate overvoltages is arranged on the plug-in element (3).

23. (new) The overvoltage protection device as claimed in claim 22, **wherein** the protection board (9) forms the spark gap together with the plug-in element (3).

24. (new) The overvoltage protection device as claimed in claim 23, **wherein** the protection board (9) has an electrically conductive structure (19, 22) forming the spark gap.

25. (new) The overvoltage protection device as claimed in claim 24, **wherein** the electrically conductive structure of the protection board (9) has a form of a conductor track, with a zone (27, 28; 31) of the conductor track which is free of solder resist being arranged in a vicinity of an opening (13) accommodating a plug-in element (5).

26. (new) The overvoltage protection device as claimed in claim 25, **wherein** the zone (31) which is free of the solder resist is formed in a solder land (30), which surrounds the opening (13), in the solder resist (29).

27. (new) The overvoltage protection device as claimed in claim 24, **wherein** the electrically conductive structure has a form of a recess which is free of solder resist, and/or an opening (27, 28) through the protection board (9).

28. (new) The overvoltage protection device as claimed in claim 27, **wherein** the recess and/or the opening (27, 28) which is free of the solder resist is arranged in a vicinity of a plug pin (5) to be protected.

29. (new) The overvoltage protection device as claimed in claim 22, **wherein** the protection board (9) has at least two conductor tracks (19, 20; 21, 22) which are located one above another, are at different potentials, and are routed to a board edge (23), with a thickness of an insulation layer (24, 25) which is arranged between the two conductor tracks (19, 20; 21, 22) being selected such that the spark gap is formed by uninsulated ends of the two conductor tracks (19, 20; 21, 22) at the board edge (23).

30. (new) The overvoltage protection device as claimed in claim 29, **wherein** a shape of the conductor tracks (19, 20, 21, 22) which are routed to the board edge (23) is selected such that conductor tips (34) are produced at the board edge (23).

31. (new) The overvoltage protection device as claimed in claim 29, **wherein** the board edge (23) is formed by at least one opening (14) through the protection board (9).

32. (new) The overvoltage protection device as claimed in claim 22, **wherein** the protection board (9) is fitted with a suppression device (10; 15, 16) to improve electromagnetic sensitivity of the electronic apparatus (1).

33. (new) The overvoltage protection device as claimed in claim 32, **wherein** the suppression device (10) is a varistor.

34. (new) The overvoltage protection device as claimed in claim 31, **wherein** a suppression device is a capacitor (10) which is arranged outside the housing (1, 2) of the electronic apparatus (1) and is electrically connected firstly to the plug-in element (5) of the plug-in device (3), and secondly to potential of the electrically conductive housing (1, 2).

35. (new) The overvoltage protection device as claimed in claim 34, **wherein** a first capacitor plate (16) of the capacitor (10) is arranged in or on the plug-in device (3).

36. (new) The overvoltage protection device as claimed in claim 35, **wherein** the first capacitor plate (16) is formed from the plug-in element (5).

37. (new) The overvoltage protection device as claimed in claim 35, **wherein** the first capacitor plate (16) is formed by one of the conductor tracks (15) which are arranged on the protection board (9) and are in a form of conductor surfaces, said conductor track (15) is arranged alongside the plug-in element (5) and is electrically connected to said element, and wherein the electrically formed housing (1), which is connected to ground, of the electronic apparatus is used as a second capacitor plate.

38. (new) The overvoltage protection device as claimed in claim 37, **wherein** a second conductor surface (18) which is arranged on the protection board (9) and is electrically connected to the housing (1, 2) forms a second capacitor surface with the housing (1, 2).

39. (new) The overvoltage protection device as claimed in claim 38, **wherein** the electrical connection between the second conductor surface (15) of the protection board (9) and the housing (1, 2) is produced by at least one fastening means (4) for holding the protection board (9) and/or the plug-in device (3) on the housing (1, 2).

40. (new) The overvoltage protection device as claimed in claim 38, **wherein** insulation (17) is arranged between the second conductor surface (18), which is formed on a surface of the protection board, and the outside of the housing (1, 2).

41. (new) The overvoltage protection device as claimed in claim 38, **wherein** the conductor surface (16) surrounding the plug-in element (5) is arranged on the protection board (9) such that it is placable and made contactable on a side of the plug-in device (3) facing the housing (1).

42. (new) A suppression device as claimed in claim 27, **wherein** a first capacitor plate (16) is provided for each plug-in element (5), and each of the first capacitor plates (16) is electrically isolated from one another.

43. (new) A suppression device as claimed in claim 29, wherein a first capacitor plate (16) is provided for each plug-in element (5), and each of the first capacitor plates (16) is electrically isolated from one another.


R E M A R K S

This amendment is being made simultaneously with filing this application. The abstract and specification have been amended in accordance with USA practice under 35 USC 112, and so that no multiple-dependent claims are present in this application and no multiple-dependent claim fees apply.

Original claims 1-21 have been canceled without prejudice or disclaimer of the subject matter therein and claims 22-43 are substituted therefor.

Please enter this Preliminary Amendment, prior to calculating claim fees and prior to an action on the merits, which is respectfully requested.

Respectfully submitted,
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